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(58) Field of Search

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On-Line : WPI, CLAIMS

(54) Moulded display frames

(57) A kit of parts for making a picture frame is provided. The kit comprises a mould 10 and a material for producing a liquid which sets rigid over time. The liquid can be placed in a mould formation 16 to set and form a picture frame. The kit also comprises anchoring means 40 which can be placed in the liquid before it sets thus serving to provide anchor points to fix a backing board to the frame to hold a picture in the frame.

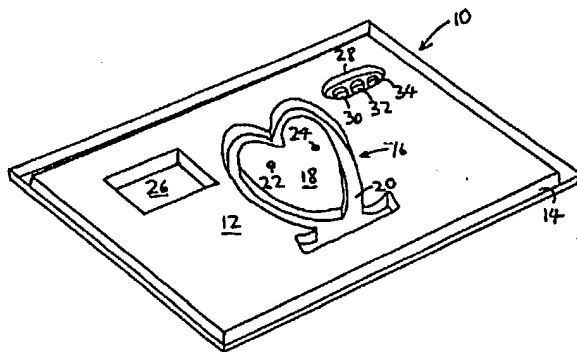


FIG. 1.

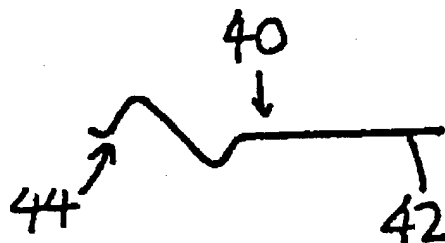


FIG. 2.

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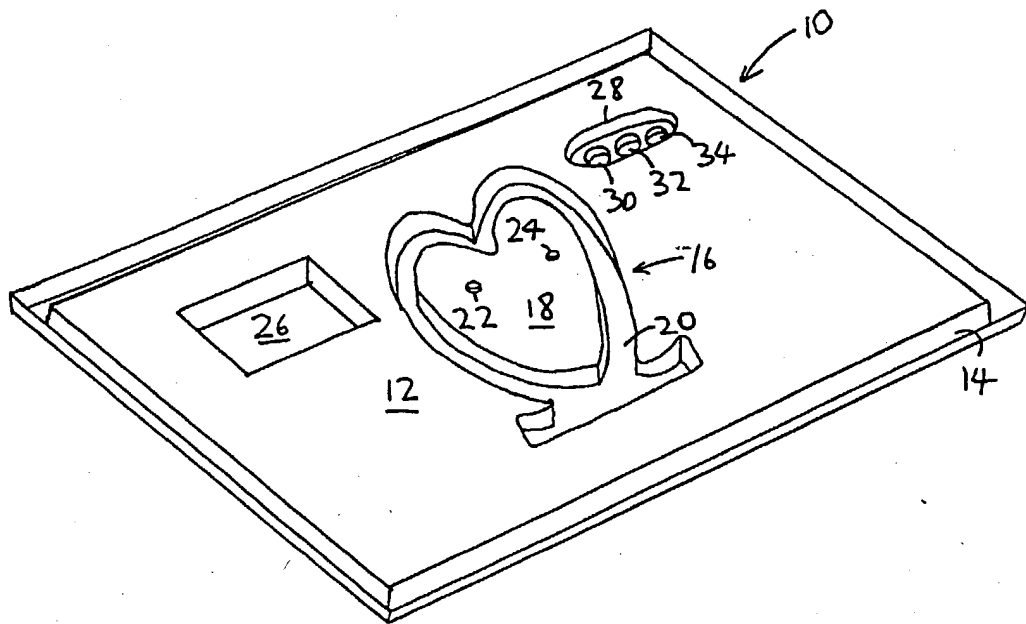


FIG. 1.

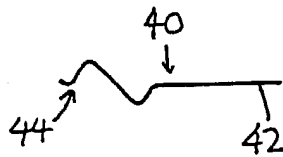


FIG. 2.

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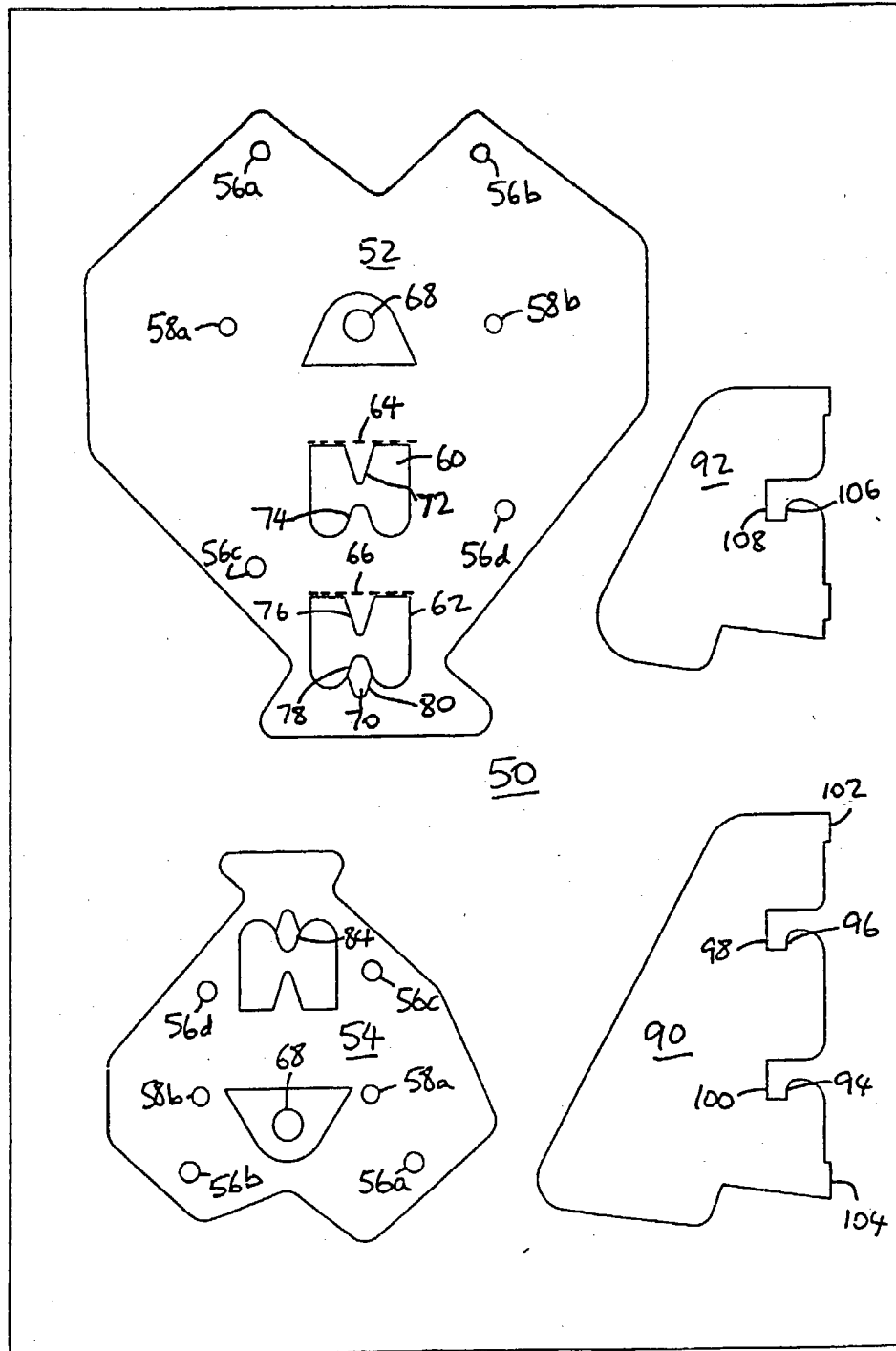


FIG. 3.

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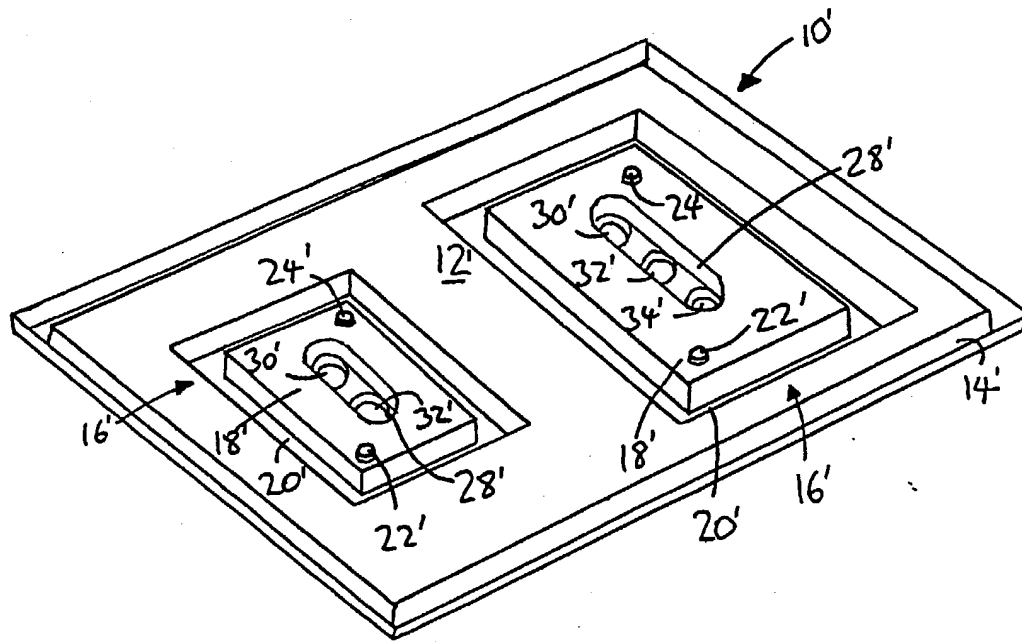


FIG. 4.

DISPLAY FRAMES

The present invention relates to display frames and is particularly but not exclusively concerned with such frames for mounting pictures and photographs.

Picture frames are conventionally fabricated from wood. Wood is a suitable material for frames which have a rectangular aspect, for example four straight sides, since it is easy to work in straight sections. However, even though the use of wood is straightforward, it is still necessary to create a suitable cross-sectional profile in wood for it to be used in a frame. Such a profile may be decorative and quite complex in shape. Furthermore, the straight sections of wood need to be joined at their ends.

Frames having non-straight edges are difficult to fabricate from wood.

A person wishing to mount a picture in a display frame may wish to produce his own frame or to select a frame having a shape or edge profile which may not be available. It is generally beyond the skill of the normal person to construct exactly that frame in which he would like to mount his picture.

It is an aim of the present invention to alleviate some of the problems discussed in the foregoing in relation to conventional frames.

According to a first aspect the invention provides a kit of parts for making a frame comprising a liquid, or a substance for producing a liquid, having the characteristic of becoming rigid with the passing of time, a mould having a mould surface of complementary

shape to that required of an outer surface of the frame, holding means adapted to be attached to the frame, and retention means adapted to be held to a rear surface of the frame.

The kit may also include one or more of the following: paint for decorating the frame, a paintbrush and instructions for making the frame.

The holding means may be attached to the frame before or after the frame becomes rigid. Preferably the holding means is attached to the frame before the frame becomes rigid.

The term "rigid" embraces setting of a liquid to become a solid, freezing of a molten material into a solid form, polymerisation of a liquid or any other change from a liquid to a solid state.

Preferably the liquid sets by the process of a chemical reaction. The liquid may be a plaster composition or cement. Most preferably the liquid is plaster of Paris. Alternatively, it may be polymer based, and may be a plastic, a rubber or other material, whether synthetic or otherwise.

Desirably the liquid is such as to become rigid substantially at room temperature.

Preferably the mould is non-permeable. The mould may be composed of a polymer base material and may conveniently be vacuum formed from a sheet of plastics material.

The frame is formed by the solidification of liquid into the shape determined by the mould.

Preferably the holding means has anchor means adapted to be inserted into the liquid in the mould before the liquid becomes rigid. The holding means may have a part or parts arranged to extend from the rear surface of the frame to be used to hold the retention means to the rear surface. Said part or parts may be deformable with respect to said rear surface.

Preferably said anchor means is non-planar. A non-planar anchor means enhances the anchoring in the material of the rigid frame. The anchor means may be an element substantially in the form of a zig-zag. The anchor means may be a holding tab.

Preferably the holding means comprises one or more clips. Most preferably there are four clips.

The retention means may be a piece of board which may form a backing board at the rear of the frame. Such a backing board may serve to hold, and protect, a picture, photograph or other article to be displayed.

Preferably the retention means has one or more apertures positioned to register with a region or regions of the mould and/or the part or parts of said holding means extending from the frame, the part or parts passing through said aperture or apertures and preferably being deformable to hold the retention means in place against the frame.

The mould may have one or more location lugs adapted to engage with one or more location holes in the retention means so as to register correctly the aperture or apertures of the retention means with the holding means. The location lug or lugs may be an interference fit in said location hole or holes.

When the retention means is provided in the form of a backing board the board may be defined as, or part of, a printed card. Preferably the card has information provided on it. The information may be instructions concerning part or all of the method of making the frame. Alternatively it may be advertising material or other information. The card may be roller cut so that the backing board shape is cut into the card. The backing board may be prised out of the card by a person making a frame.

The backing board may be provided with a stand to enable the frame to be self standing. The stand may be an element separate from the backing board. Alternatively or additionally the backing board may be provided with means, such as a tab, to enable the frame to be hung.

A vacuum formed mould may have one or more regions present for making frames of different shapes, sizes or characteristics. The vacuum formed mould may be usable only once or it may be re-usable.

According to a second aspect the invention provides a method of producing a display frame comprising the steps of pouring a liquid into a mould, the liquid having the characteristic of becoming rigid with the passing of time, and the mould having a mould surface of complementary shape to that required of an outer surface of the frame, attaching holding means to the frame, allowing the frame to become rigid and using the holding means to hold retention means to a rear surface of the frame.

According to a third aspect the invention provides a frame made by a method according to the second aspect of the invention.

According to a fourth aspect of the invention we provide a frame made from a kit according to the first aspect of the invention.

An embodiment of the invention is described below by way of example only with reference to the accompanying drawings in which:

Figure 1 shows a perspective view of a casting mould;

Figure 2 shows a side view of a retaining clip;

Figure 3 shows a plan view of a card including two backing boards; and

Figure 4 shows a perspective view of a second embodiment of a casting mould.

The casting mould 10 shown in Figure 1 has a substantially planar central region 12 and an edge region 14. The mould 10 is vacuum formed out of a sheet of plastics material and the edge region 14 provides a trough around the edge of the mould 10 to provide rigidity to the substantially planar central region 12.

In the central region 12 is a mould formation 16. This comprises a central plateau 18 surrounded by a sunken region 20 adapted to receive liquid casting material which sets in the mould formation 16 to create

a frame. Two lugs 22,24 project upwardly from the central plateau 18.

At one side of the mould formation 16 is a container region 26 sunken into the central region 12. This is adapted to receive, for example, casting material in a powder form, such as plaster of Paris, prior to its preparation into a liquid form. It may receive other materials or articles necessary for production of a frame. At the other side of the mould formation 16 is a multi-compartment sunken region 28, containing compartments 30,32,34 in a row. These compartments are adapted to receive containers of paint. They may however serve alternatively or in addition as mixing chambers to mix or hold paint.

If desired the mould may be formed with more than one mould formation 16.

Figure 2 shows a retaining clip 40. One end 42 is substantially planar. Another end 44 is in the shape of a zig-zag. The planar end 42 is adapted to be deformed to hold a backing board. The zig-zag end 44 is adapted to provide an anchor in solidified casting material. The clip 40 is composed of a fully annealed mild steel such as tinplate. Such a material will readily tolerate deformation.

Figure 3 shows a card 50 containing elements for a backing board. The card and the backing board are made from card which typically is 0.9mm thick. The card is screen printed with instructions to assist in moulding and assembly of the frame. The backing board elements are roller cut into the card so that they can be prised out by the user. In the embodiment shown in Figure 3 the card contains two backing boards 52,54

with outlines which broadly correspond to the shape of the frame in two different sizes. Such a card would be most suitable for use with a mould having two mould formations provided in the mould. In the example given, the backing boards would each be suitable for backing a heart-shaped frame.

Each backing board 52,54 has several holes 56a,56b,56c,56d which are present as latching points for the backing board to be attached to the frame. Other holes 58a,58b are location holes to enable the backing board to be correctly registered with respect to a frame.

The following description refers primarily to the larger backing board 52. Flaps 60,62 are roller cut features which may stand outwards from the plane of the backing board 52. The flaps 60,62 hinge about hinge regions 64,66 respectively. A hole 68 is also present. The flaps 60,62 and the hole 68 form a bracket onto which a stand 90 may be attached to the backing board.

The mould 10, one of the backing boards 52,54, a plurality of the retaining clips 40, the casting material (for example powdered plaster for mixing), paints and a paint brush, if provided, constitute a kit of parts for making a frame, for example for a picture or photograph.

In the construction of a frame from the kit the casting material is mixed to a liquid consistency. The liquid casting material is then poured into the sunken region 20 of the mould. In this example the mould would form a heart-shaped frame. If excess casting material is poured into the mould it may be cleaned off

to leave the central plateau and surrounding central region free of liquid casting material and the upper surface of the liquid casting material substantially flat. The appropriately sized backing board, 52 in this example, is then placed over the mould such that location lugs 22,24 locate in the holes 58a,58b in order to position the board correctly on the mould with respect to the frame being moulded. As the casting material begins to set, retaining clips 40 are inserted into the setting material through each of the holes 56a,56b,56c,56d. The zig-zag end 44 of each clip 40 is inserted into the casting material and the planar end 42 is allowed to remain proud of the surface of the casting material. The backing board acts as a template to locate the clips correctly in the setting casting material. The casting material is allowed to set completely.

Once the casting material is fully set into the shape of the frame, the formed frame is removed from the mould. If necessary, pressure exerted by a user on the sunken region of the mould may assist in removal of the frame. There should be enough flexural ability in the mould to assist also in removal of the frame.

The backing board may be removed from its position at the back of the frame either before the frame is removed from the mould or afterwards.

If desired the frame may be decorated. For example it may be painted to provide a colour other than the plain white of the plaster of Paris. Alternatively, the powdered plaster for mixing may already have a colouring agent added to produce a coloured frame.

The flaps 60,62 are displaced from the plane of the backing board by pivoting them around their hinge regions 64,66 such that they stand at an angle of 90° to the board. An element 70 is removed completely from the board.

The stand 90 may now be attached to the backing board. Latch surfaces 94 and 96 of the stand 90 are brought into contact with edges 72 and 76 respectively in the backing board. Engagement surfaces 74 and 78 of the backing board engage with upper surfaces 98 and 100 respectively of the stand. A tooth 102 of the stand engages with the hole 68 in the backing board and a further tooth 104 engages with surface 80 of the backing board. The effect of the engagement of teeth 102,104 is to fix the stand 90 against relative longitudinal movement with respect to the backing board 52.

Of course, the invention is not limited to providing a backing board 52 having two flaps and a stand 90 having a set of engagement surfaces for each flap. Backing board 54 and a mating stand 92, for example, may have only one flap and one set of engagement surfaces 106 and 108 provided on the stand 92.

A picture or photograph may now be fixed to the backing board 52 to be mounted in the frame. The picture or photograph may be conveniently cut to size to sit correctly in the frame before it is mounted. The picture or photograph may be fixed to the backing board by adhesive. The backing board 52 is then placed back on the frame with the planar end 42 of the clips 40 extending through the holes 56a,56b,56c,56d. Having so located the backing board the planar ends

of the clips are deformed such that each clip forms generally an L-shape, with the zig-zag end embedded in the frame. The planar ends 42 of the clips 40 are pressed down against the backing board 52 to prevent its movement relative to the frame. The frame assembly is now complete.

Conveniently, the mould which is employed has a flattened region corresponding to a base part of the finished frame on which the frame may stand. A separate element may possibly be applied to the bottom of the frame to form a base.

Figure 4 shows a second embodiment of a casting mould 10'. The casting mould 10' is similar to the casting mould 10 of Figure 1 and in Figure 4 corresponding reference numerals (with a dash added) have been applied to corresponding parts.

The mould 10' has two mould formations 16' and 16" one, 16', larger than the other, 16". The mould formations are substantially rectangular in shape rather than heart-shaped. No container region for receiving casting material in powder form is provided, it is preferred to package the casting material separately with the mould 10'.

Of course, it will be appreciated that suitable backing boards for frames produced in moulds 16' and 16" are substantially rectangular in shape. Suitable backing boards will be provided with holes to enable the backing boards to be located correctly on the lugs 22' and 24' and to enable retaining clips, such as those in Figure 2, to be located correctly in material setting in the sunken regions 20'.

CLAIMS

1. A kit of parts for making a frame comprising a liquid, or a substance for producing a liquid, having the characteristic of becoming rigid with the passing of time, a mould having a mould surface of complementary shape to that required of an outer surface of the frame, holding means adapted to be attached to the frame, and retention means adapted to be held to a rear surface of the frame.

2. A kit according to claim 1 in which the holding means is adapted to be attached to the frame before the frame becomes rigid.

3. A kit according to claim 1 or claim 2 in which the liquid is such as to become rigid substantially at room temperature.

4. A kit according to any one of the preceding claims in which the liquid is a plaster composition or cement.

5. A kit according to any one of the preceding claims in which the holding means has anchor means adapted to be inserted into the liquid in the mould before the liquid becomes rigid.

6. A kit according to claim 5 in which the anchor means is non-planar.

7. A kit according to any one of the preceding claims in which the holding means has a part or parts arranged to extend from the rear surface of the frame to be used to hold the retention means to the rear surface.

8. A kit according to claim 7 in which the or each part is deformable with respect to said rear surface.

9. A kit according to any one of the preceding claims in which the retention means comprises a piece of board which is adapted to form a backing board at the rear of the frame.

10. A kit according to any one of the preceding claims in which the mould has one or more location lugs adapted to engage with one or more location holes in the retention means so as to register correctly the aperture or apertures of the retention means with the holding means.

11. A kit of parts for making a frame substantially as described herein with reference to Figures 1, 2 and 3, or 3 and 4, of the accompanying drawings.

12. A frame made from a kit in accordance with any preceding claim.

13. A method for producing a display frame comprising the steps of pouring a liquid into a mould, the liquid having the characteristic of becoming rigid with the passing of time, and the mould having a mould surface of complementary shape to that required of an outer surface of the frame, attaching holding means to the frame, allowing the frame to become rigid and using the holding means to hold retention means to a rear surface of the frame.

14. A method for producing a display frame substantially described herein with reference to Figures 1, 2 and 3, or 2 and 4, of the accompanying drawings.

15. A frame made by a method in accordance with claim 13 or claim 14.

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Patents Act 1977
Examiner's report to the Comptroller under Section 17
(The Search report)

Application number
GB 9502517.7

Relevant Technical Fields

- (i) UK Cl (Ed.N) A4X
(ii) Int Cl (Ed.6) A47G 1/06, 1/14

Search Examiner
P N DAVEY

Date of completion of Search
5 APRIL 1995

Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

Documents considered relevant following a search in respect of Claims :-
1-15

(ii) ONLINE: WPI, CLAIMS

Categories of documents

- | | |
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| <p>X: Document indicating lack of novelty or of inventive step.</p> <p>Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.</p> <p>A: Document indicating technological background and/or state of the art.</p> | <p>P: Document published on or after the declared priority date but before the filing date of the present application.</p> <p>E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.</p> <p>&: Member of the same patent family; corresponding document.</p> |
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Category	Identity of document and relevant passages	Relevant to claim(s)
X	GB 0857673 (MARTIN SUPPLY CO) see eg page 1, lines 37-77	1, 12, 13 at least
X	GB 0679580 (N B MOULDINGS) see eg page 2, lines 27-55	1, 12, 13 at least
X	GB 0625191 (COWAN) see eg page 2, lines 39-82	1, 12, 13 at least

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).